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**ROYAL CANADIAN
ELECTRICAL MECHANICAL ENGINEERS**

CATM



Canadian Army Training Memorandum

MAY 1945

NUMBER 50

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ROYAL CANADIAN ELECTRICAL



Col. H. G. Thompson, D.F.C.
Director of Mechanical Engineering

AND MECHANICAL ENGINEERS

The Corps of Royal Canadian Electrical and Mechanical Engineers is this month celebrating its first anniversary. Its parent Corps the Royal Electrical and Mechanical Engineers is older by less than two years, having been formed on 1 Oct 42.

The formation of both Corps was a result of the mechanization of the modern army, which called for a tremendous expansion in the engineering branch of the Ordnance Corps as well as the repair services of the Engineers and Army Service Corps. Personnel from all three Corps were included in the new organization and the records of both REME and RCEME* since their formation speak for themselves.

In the matter of history, however, it should be noted that we all, in common with the Artillery, originated from Ordnance. Considering the development analytically, RCEME represents a further step in the application of modern industrialization to warfare. With the introduction of metals, guns were developed and the Royal Regiment of Artillery was formed. Later, with the expansion of military engineering, the Royal Engineers came into being. Following on came the development of transportation and increased mobility involving supply problems, and the Royal Army Service Corps was formed. Finally, there came the industrial age of the present day. The necessity for maintaining in service the vast range of equipment used by the modern army was considered of such importance as to justify the formation of still another Corps.

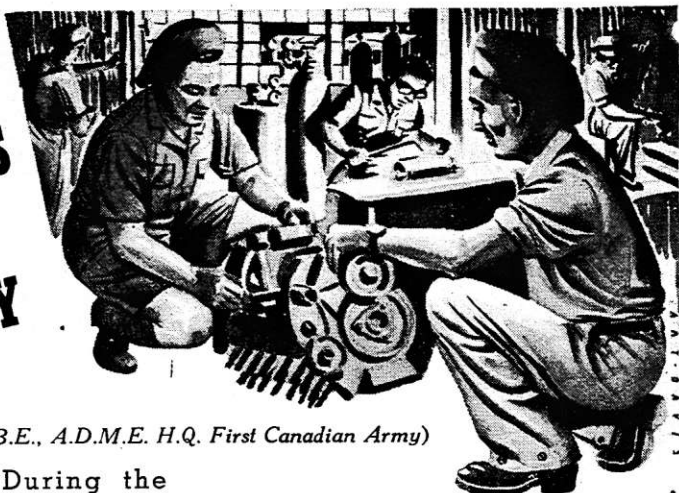
In the RCEME Corps will be found the big majority of the most highly skilled tradesmen in the army. They are officered almost entirely by qualified engineers. These, however, are very ably assisted by a small group of assistant engineers commissioned from the warrant officers of our own Corps and by our armament artificers specially selected from our best artisan tradesmen and thoroughly trained on the various army equipments.

It is RCEME's guiding principle that their men are soldiers first and foremost. It is their proud boast that they can repair every type of equipment from a watch or radio to a gun or tank.

**Pronounced "REE-MEE"*

A handwritten signature in dark ink, appearing to read 'R. G. Thompson', with a long horizontal flourish extending to the right.

RCEME OPERATIONS IN FIRST CDN ARMY



(By Lt. Col. C. R. Boehm, M.B.E., A.D.M.E. H.Q. First Canadian Army)

INTRODUCTION: During the campaign in N.W. Europe, from the invasion of Normandy to the clearing of the west bank of the Rhine, much was learned in the handling of RCEME and REME units. Although the Corps was a relatively new organization in the army it was of great satisfaction to find that it was organized on a sound basis and earned the commendation of formation commanders on many occasions. This article touches only briefly on the high spots of the current RCEME practice that enabled the service to perform its duties.

GENERAL PRINCIPLES: The efficient use of all RCEME resources within the army largely depended upon the following: (a) a clear-cut line of technical responsibility right down to the individual craftsman attached to units of other arms; (b) a strong central control of all RCEME Army Troops units.

Priority

During the long period of training of the First Canadian Army in the United Kingdom it was realized that the maintenance of equipment must be given priority over the technically more interesting heavier repair jobs. Accordingly, RCEME units within the divisions were constantly reinforced at the sacrifice of third line workshops, and LADs received experienced reinforcements directly from second line workshops.

It was found that the most effective use of third line or "Army" facilities could be made only if they were considered as part of the Army pool, so that their considerable strength could be employed with flexibility.

MAINTENANCE: The CREME of a division was responsible for maintenance as well as repair and recovery. Even during operations the system of inspections by LADs and workshop personnel would cover from 40% to 60% of all types of equipment of a formation each month. These inspections were discussed at length in a monthly report prepared by CREME. They provided a constant check on the standard of maintenance of a formation.

The division of responsibility for maintenance and repair between the unit and LAD was laid down as follows:

Unit—Responsible for maintenance, adjustment, and running repairs.

LAD—Responsible for inspections, first echelon repairs and arrangements for repairs beyond capacity.

REPAIRS: CREME of a formation was responsible for the provision of RCEME repair services to all units operating within his area. The many small units without RCEME personnel shared the services of existing LADs. All units were provided with definite second line workshop facilities.

LADs and attached RCEME personnel were under command of the unit to which they were attached, but were continually visited by CREME who exerted considerable control over their personnel and technical operation.

Normally, second line workshops in divisions were under command CREME and were never considered as brigade workshops, except in the case of independent brigades. Third line workshops were under command CREME Corps or Army Troops, depending upon the work load and the tactical situation. These workshops were sited after consultation with the DDME Army, who would allocate to DDME Corps the workshops requested when he was satisfied that there was sufficient work at the proposed site to justify the movement of the workshop.

Repair Schedule

The echelon repair schedule was followed only as a broad guide. It was stressed that LADs should do only first echelon repairs and that second line workshop should not exceed second echelon repairs. Third line workshops usually did only overflow second echelon repairs, as there was always a large back-log of equipment requiring these. Third echelon repairs were done by third line workshops only in emergencies. Fourth line workshops in this theatre were the advanced base type and, as in the case of third line shops, did mostly second and third echelon work which overflowed from third line workshops; rarely did they do normal fourth line repairs. It was intended to send all engine assemblies requiring rework to civilian and base workshops in the United Kingdom but later in the campaign, due to the shortage of assemblies, it was necessary to organize these repairs in Belgium.

RECOVERY: Recovery within the divisional area was the responsibility of



Lt. Col. Boehm

CREME. Usually it was well within the capacity of his equipment.

In the Corps area the DDME Corps had under command an Army Recovery Company, consisting of a headquarters and varying number of sections. These were employed on an area clearance basis rather than a system of reports of individual "crops." DDME Army directed recovery within the army area, having at his disposal a recovery company consisting of a HQ, and a varying number of sections. He arranged recovery likewise on an area clearance basis, similar to Corps.

"Crops" Cleared

DDME Corps located CBPs (Corps Backloading Points) after consultation with DDME Army. These points were picked so that they could be expanded into ABPs (Army Backloading Points) and with suitable workshop sites adjacent. All the repairable "crops" were cleared either directly to workshops or to Backloading Points. Backloading Points were operated by recovery sections.

Road clearance was a formation responsibility. The senior RCME Officer established the necessary Recovery Points in consultation with Q Branch and Traffic Control. When regrouping of formations occurred necessitating large scale movements arrangements were made for Army or Corps to lay out the necessary recovery points to cover the movement routes, thus relieving the Divisional recovery facilities of this responsibility.

INSPECTIONS: Besides the routine inspections of unit equipment by LADs and attached RCME personnel, there were the following inspectorates working independently of formations:

(a) AFV inspectorate which was responsible to DDME Army for inspection of all AFVs issued by the Corps or Army Delivery Squadrons, as well as AFVs turned out by third line workshops. This inspectorate worked to standards drawn up by the Chief Inspector AFV 21 Army Group as amended by DDME Army. The thoroughness of the inspectorate was in no small way responsible for mechanical efficiency of all AFVs issued to units.

(b) Unit Maintenance Inspectorate which inspected B vehicles of Army troops under the supervision of CREME Army Troops. This inspectorate advised units on maintenance problems brought to light during their inspections. It was found impractical to employ teams of this unit forward of the Army area during operations.

REPAIRS OF NEW EQUIPMENT:

Early in the campaign it was realized that a constantly increasing load was being thrown on forward workshops by the faulty condition of new equipment. All mechanical defects needed immediate repair to prevent more serious failures and the development of bad psychological effects on the unit, which would result in lack of interest in unit maintenance. Accordingly small "ad hoc" detachments similar to LADs

were made up for attachment to Corps Field Parks, and an extra Infantry Brigade Workshop was obtained from 21 Army Group for employment on equipment held by the Army Vehicle Park. The need for these units was clearly demonstrated by the result of one month's operation of the Infantry Brigade Workshop, which showed that 88% of all new vehicles being issued required workshop repairs.

SALVAGE: All unserviceable equipment except that requiring special recovery vehicles was backloaded through salvage channels. RCME personnel assisted and advised Ordnance Salvage on the sorting and care of technical equipment being backloaded. Workshops kept their ancillary reclamation sections loaded to capacity by drawing equipment as required from the Ordnance Salvage Unit of their formation.

SPECIAL TASKS: The General Staff frequently required special tasks carried out such as conversion of 72 SP mounts M 7 into Kangaroos (Army Personnel Carriers) in 3½ days. As it turned out, the use of these Kangaroos contributed largely to the success of the break-out south of Caen. This conversion included the removal of the main armament, the provision and welding of armour plate across the mantlet opening, and a 100-hour check and reconditioning of the vehicle.

Resources Pooled

This and other similar short notice jobs were made possible only by the pooling of the resources of many units under command of army. Valuable assistance was obtained from workshops of formations, but the main working parties in all cases had to be readily available in workshops under command of CREME Army Troops for immediate call.

CONCLUSIONS: Some of the important RCME lessons brought out

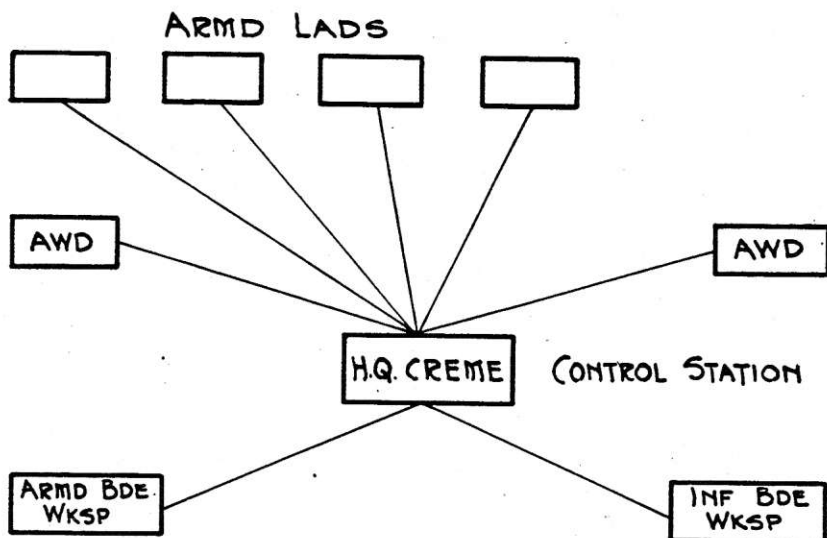


FIG. 1. WIRELESS DIAGRAM RCME NET

RCME OPS

(Continued from Page 7)

during the campaign in N.W. Europe were as follows:

(a) The successful use of RCME service in all formations depended largely upon the flexibility and initiative with which it was employed.

(b) There was a definite need for earlier training of RCME personnel in the maintenance and repair of **all** types of technical equipment, so that they could perform their normal function of supervising unit maintenance as soon as the unit received the equipment.

(c) Close liaison is always necessary between RCME and Ordnance Salvage at all formation levels in order to prevent the loss of much valuable technical equipment.

(d) RCME units are very necessary at the Corps and Army Troops Vehicle Parks so that necessary inspections and repairs can be carried out prior to the issue of vehicles to units.

(e) The most successful method of effecting large scale recovery opera-

tions was by area clearance rather than by detailed reporting of "crops."

RCME IN ARMoured DIV

(Continued from Page 14)

Corps, was generally allotted by the DDME Corps to liaise directly with and assist a division. This section cleared workshops and Divisional Recovery Posts of crops for backloading.

Similarly the recovery sections of the workshops were responsible for forward liaison, the operation of the Divisional Recovery Post, and rendering as much assistance as possible to LADs.

CONCLUSION: The success of an Armoured Division in modern warfare depended very largely on its mechanical fitness. The CREME was responsible to the GOC for this and was constantly using every means at his disposal to overcome the wear and tear of operations on machines. He was prepared to employ his service flexibly and with considerable initiative. Seldom was there a set piece operation and rarely was the "Book" more than a guide for training and the broadest general policy.

RCEME IN AN ARMoured DIVISION

(By Lt. Col. R. H. Noble, O.B.E.,
Commander RCEME, Fourth Canadian Armoured
Division)

INTRODUCTION: Due to the rapid advance from Normandy to Holland the movement of RCEME units in an armoured division introduced many new problems. It is intended to briefly describe the principles and lessons brought out during this campaign as experienced by the writer.

ORGANIZATION: Commander REME of a division was responsible to the AA and QMG for the proper functioning of the RCEME Service within the formation as well as technical advice on maintenance, repairs and recovery. He had a HQ of his own to do the following: (a) administer all RCEME units directly under his command; (b) provide technical supervision of LADs (Light Aid Detachments) and RCEME personnel attached to other types of units.

Echelon Repairs

The repair organization in an armoured division is based on the system of echelon repairs as follows: (a) units are responsible for maintenance, adjustments and running repairs; (b) LADs are responsible for inspection and first echelon repairs; (c) Workshops (including AWDs — Advanced Workshop Detachments) are responsible for first and second echelon repairs within their capacity.

Units without LADs are allotted LAD facilities by CREME. In this way some of the more static LADs were responsible for equipment of several units to which they were not formally attached.

LADs: It was considered that the LAD, because of its intimate association



Lt. Col. Noble

with other units of other arms and services, was largely responsible for the reputation of the RCEME Service. Although the LAD had a fixed composition, it was often necessary to provide assistance from second line workshops for special programs. It was also found advisable to interchange personnel between workshops and LADs so that their interest and standard of work was kept up.

The LAD moved under the direct command of the unit to which it was attached and was usually set up in the unit's A echelon area. It was necessary that it operated as a self-contained unit, relying upon Regimental HQ for assistance in the paper work and the supplying of rations and general stores.

Practically all spare parts and materials needed for repairs were obtained by the LADs directly from Ordnance and other sources. Lack of spares was seldom accepted as an alibi

for unfinished work. Assistance was always available at workshops and HQ CREME. LADs in the Armoured Brigade and Infantry Brigade were under the technical control of the DADME HQ Armoured Brigade, and the EME at HQ Infantry Brigade respectively. Other LADs came directly under CREME for technical supervision.

AWDs: The AWD consisted of a variable group of personnel and equipment selected from a second line workshop to work in a forward position. The object of moving it forward was to perform the maximum number of repairs as far forward as possible, or "in situ", and in this way speed up the time of repair as well as reduce recovery work.

Sites were chosen beside the Divisional Recovery Post, with an eye to expansion into second line workshops. Control of the AWD was through the DADME at HQ Armoured Brigade, or the EME at HQ Infantry Brigade, but all matters concerning its composition were referred to CREME. Personnel equipment and stores were constantly on the move between AWDs and their parent workshops.

WORKSHOPS: The control of workshops was in the hands of CREME. During normal work, these units were located in the Divisional Administrative Area. However, during long or rapid moves it was found to be impractical to have these units moving with the Administrative Group following the division. It was then necessary to move the workshops as part of the Brigade groups under command of Brigade HQ.

The normal role of the workshops was second echelon repairs within the limitations of both the time and the stores available. It seemed that there was never enough capacity to catch up with all the

work of this nature required by an armoured formation.

The Infantry Brigade Workshops developed into an Armoured Brigade Workshop in all but size and WE. There was little difference in the type of work undertaken by the two workshops on different WEs. It is doubtful if two full Armoured Brigade Workshops could have kept ahead of the work that developed.

INTERCOMMUNICATIONS: Efficient repair and recovery depended largely upon speedy communications. The wireless net illustrated in Fig. 1 operated satisfactorily when distances and weather conditions permitted, but it was necessary to have a DR service as an alternative. HQ CREME acted as the control station, and was on net 12 or 24 hrs. depending upon the action.

LADs and workshops netted each morning at 0800 hours and called twice daily. AWDs and workshops remained on net 12 or 24 hours depending on action.

The DR Service was used daily to LADs not equipped with wireless, and to all units when wireless failed.

RECOVERY: Recovery operations in an Armoured Division was carried on by units, LADs and Workshops. Each Armoured regiment was equipped with one armoured recovery vehicle per squadron, with which it was responsible for recovery within the limitations of its scope and area. The LAD with its soft-skinned breakdown lorry assisted the unit in comparatively safe working areas. Both unit and LAD combined to collect "crops" beyond their repair capacity at the Divisional Recovery Post and AWD.

The recovery section of the second line workshops cleared "crops" from the Divisional Recovery Posts to the workshops. In all cases equipment was recovered by the most direct means possible. A section of the Army Recovery Company under Command

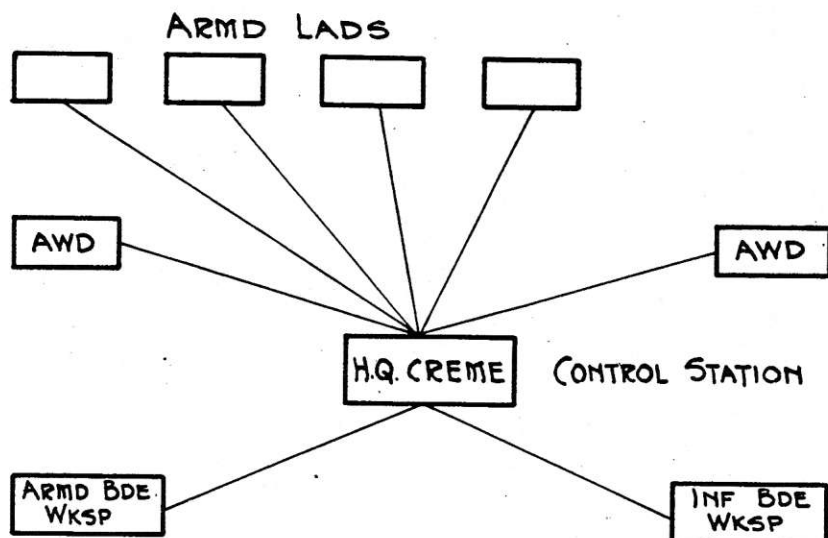


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THIS MONTH'S COVER . . .



CATM dedicates its cover this month to the Royal Canadian Electrical and Mechanical Engineers, a Corps that lives up to the proud boast that it can repair any type of equipment used by the army.



Next Month—THE ROYAL CANADIAN ARMY PAY CORPS

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